

CLAIMS

What is claimed is:

1. A system for damping vibration of a mass, comprising:
a housing having at least an outer peripheral surface, configured to mount to the mass, and an inner peripheral surface that defines an interior space; and
macro-particles disposed within the housing interior space and able to flow therein, to thereby simulate a fluid.
2. The system of claim 1, wherein the macro-particles comprise macro-particles having substantially smooth surfaces.
3. The system of claim 2, wherein the macro-particles comprise macro-particles that are substantially orb-shape.
4. The system of claim 1, wherein the macro-particles comprise macro-particles having substantially fractured surfaces.
5. The system of claim 1, wherein the macro-particles include a mixture of macro-particles having substantially smooth surfaces and macro-particles having substantially fractured surfaces.
6. The system of claim 1, further comprising:
at least one protrusion located on the housing inner peripheral surface to disrupt macroparticle flow.
7. The system of claim 6, wherein the protrusion comprises a baffle located on the housing inner peripheral surface.
8. The system of claim 7, wherein the baffle is washer-shaped.
9. The system of claim 7, wherein the baffle is formed on the housing inner surface.
10. The system of claim 7 wherein the baffle is coupled to the housing inner surface.

11. The system of claim 6, wherein the at least one protrusion comprises a surface texture formed on the housing inner peripheral surface.
12. The system of claim 1, wherein the macro-particles comprise macro-particles that are about 1 μm to 1 mm in size.
13. The system of claim 1, wherein the macro-particles comprise single atom macro-particles.
14. The system of claim 1, wherein the macro-particles comprise macro-particles that are processed from substantially thermally stable, substantially chemically stable, and substantially wear-resistant material.
15. The system of claim 14, wherein the material is graphite.
16. The system of claim 14, wherein the material is aluminum oxide.
17. The system of claim 14, wherein the macro-particles comprise a mixture of macro-particles, each macro-particle processed from a different material.
18. The system of claim 14, wherein the macro-particles comprise macro-particles processed from more than one material.
19. The system of claim 18, wherein the macro-particles comprise ceramic-coated metal macro-particles.
20. The system of claim 18, wherein the macro-particles comprise metal-coated ceramic macro-particles.
21. The system of claim 1, further comprising:
a stirring mechanism disposed within the macro-particles.
22. The system of claim 21, wherein the stirring mechanism includes grains capable of moving through the macro-particles upon agitation of the system.

23. The system of claim 21, wherein the stirring mechanism is coupled to the housing inner peripheral surface

24. The system of claim 23, wherein the stirring mechanism is a component configured to mechanically stir the macro-particles.